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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,099	01/16/2002	Keizaburo Matsumoto	020043	5715

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EXAMINER

DICUS, TAMRA

ART UNIT	PAPER NUMBER
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1774

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Please find below and/or attached an Office communication concerning this application or proceeding.

AG-4

Office Action Summary

Application No. 10/030,099	Applicant(s) MATSUMOTO, KEIZABURO	
Examiner Tamra L. Dicus	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: "printedsurface" should have a space between the "d" and the "s". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It appears from the specification, "ink-absorbing" and "ink-fixing" resins are not different as the instant claim describes. The specification describes "ink-absorbing" and "ink-fixing" resins as being the same component.
4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claim 6 recites the limitation "the print film" in line 2. There is insufficient antecedent basis for this limitation in the claim.

- b. Further claim 6 is confusing as to how an oil-based ink has a print film, e.g. "ink is formed at least on the print film of the oil-based ink". This terminology also applies to claim 8. The Examiner takes the position the print film according to the claim is a substrate in the article.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 4,833,486 to Zerillo:

7. Zerillo teaches an ink jet image transfer lithographic. Printing ink is on paper at col. 3, lines 10-15 having an image (equivalent to fixed information) thereon. The printing process is a lithographic printing process. An ink jet printer prints graphics and text to a plate (equivalent to printed matter having a receiving layer for an ink jet recording ink) at col. 3, lines 14-30.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,245,421 to Aurenty et al. in view of USPN 6,541,567 to Riku et al.

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Aurenty teaches two layers on a print media, a substrate has the first layer having a hydrophilic and porous layer, and an ink receptive, thermoplastic image layer (fixed information) comprising a copolymer adhered to the hydrophilic and porous layer for lithographic printing plates (col. 3, lines 9-10). The substrate can be a film or paper (meeting claim 6). See col. 4, lines 20-32. Further teaching at col. 4, lines 40-45 paper and polymeric film substrates may be coated. The hydrophilic and porous layer (hp) includes a water soluble binder such as polyvinyl alcohol (col. 4, lines 46-60) (meeting claim 3). The hp layer may include silica, pigment, or UV absorbers and brightener particles (filler) at col. 5, lines 10-20 (meeting claim 4). At col. 5, lines 65-68 and col. 6, lines 14-25, the media is prepared by ink jet application onto the hp layer. Both layers receive ink and are therefore considered ink receptive, functioning as having a receiving layer and both layers since they comprise very little percentage of other additives, are the main ingredient in each layer. Addressing claim 10, at col. 2, lines 60-68, Aurenty also teaches U.S. Pat. No. 5,820,932 discloses a process for the production of lithographic printing plates. Ink jet liquid droplets form an image upon the surface of a printing plate corresponding to digital information depicting the image as provided by a computer system which is in communication with the printer heads. This teaching provides functional equivalency to forming a receiving layer by an in-line system, as recited in instant claim 10.

10. Aurenty does not teach an "ink-fixing resin" *per se* or "a cationic group" in an ink receiving layer as instant claims 1 and 5, respectively. However, Riku teaches a coating composition for ink receiving layer formation. Riku teaches at col. 9, lines 25-38, an acid dye or pigment in the ink ingredients is fixed by the cationic copolymer contained in the receiving layer (equivalent to ink-fixing resin). See col. 2, lines 30-40, col. 1, lines 35-50, and abstract teaching

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the coating comprising a modified cationic polymer obtained by mixing a compolymer from 10 to 100 wt% and a vinyl monomer having a cationic quaternary ammonium salt group with polyvinyl alcohol. The other inclusive monomers listed at col. 6, lines 1-15 are acrylic acid, and vinylpyrrolidone which may be homo- or copolymers. Further at col. 8, lines 54-65, Riku teaches adding other acrylic resins, fillers, and such to the ink receiving layer. The teachings of Riku are equivalent to providing an ink-fixing resin having cationic groups as recited in instant claims 1 and 5. Therefore, it would have been obvious to one of ordinary skill in the art to modify the printable media of Aurenty to further include ink-fixing resin having cationic groups since Riku teaches doing so provides excellent ink-fixing properties at col. 7, lines 60-65 and at col. 9, lines 30-35 teaching the substrate is excellent in the absorption and drying of inks.

11. While Aurenty does not teach oil based ink having a print film as instant claim 7, Aurenty teaches at several citations within the reference how oil based ink is used on a film. Aurenty teaches using oil-based inks for lithographic printing at col. 1, lines 16-20. Aurenty, as explained above at col. 4, line 30, teaches printing on polymeric film. Thereby, teaching oil-based inks printed on film (equivalent to ink jet ink on the film of the oil based ink). Also at col. 2, line 60-col. 3, line 6, Aurenty explains the process of ink jet printing to form a coated polymeric image, thereby producing a polymeric film encompassing ink jet ink. It would have been obvious to one of ordinary skill in the art to have ink jet ink on film of oil based ink since Aurenty teaches printing with an oil based ink and the substrates to which ink jet ink is adhered may be on a polymeric film as cited above. Furthermore, Riku teaches at col. 9, lines 25-38, usable printing inks in ink-jet printing on the ink-receiving layer are water-based and oil-based dye inks and pigment inks. Further explaining in actual ink-jet printing, ink drops ejected from a

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nozzle strike on the ink-receiving layer and are absorbed by the layer. An acid dye or pigment in the ink ingredients is fixed by the cationic copolymer contained in the receiving layer, resulting in the ink-receiving layer showing satisfactory adhesion to the substrate, obtaining satisfactory properties such as transparency, gloss, and is excellent in the absorption and drying of inks. The image recorded thereon by ink-jet recording is clear and free from ink running and is satisfactory in the fixability and water resistance of the ink. The printed substrate further has satisfactory storage stability. Therefore, it would have been obvious to one of ordinary skill in the art to have oil based ink on film of the media of Aurentury since Riku teaches both water-based and oil-based inks are interchangeable for ink jet printing on substrates, resulting in properties such as transparency, gloss, excellent absorption and drying of inks, an image clear and free from ink running, satisfactory in the fixability and water resistance of the ink, further having satisfactory storage stability at col. 9, lines 30-38.

12. Further addressing claim 7, While Aurentury teaches acrylic based resins used, Aurentury does not mention the specific composition comprised of emulsion monomers containing 15% by weight or more of methacrylic ester compound. However, Riku teaches at col. 5, line 63-col. 6, line 15, specific examples of a hydrophilic radical-polymerizable vinyl monomer used includes hydroxylated acrylic esters such as hydroxyethyl methacrylate, ethylene glycol methacrylate, and polyethylene glycol methacrylate, acrylamide compounds such as methacrylamide, methylolacrylamide, and methoxymethylolacrylamide, glycidyl acrylate compounds such as glycidyl methacrylate, nitrogen-containing vinyl compounds such as vinylpyridine, and vinylpyrrolidone, unsaturated acids such as acrylic acid, methacrylic acid, and crotonic acid and salts of these acids, and aminoalkyl methacrylates. These monomers may

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be used in combination with each other with one or more other vinyl monomers (polyvinyl alcohol included). At col. 6, lines 26-50, Riku further explains the hydrophilic monomers described above can be graft-polymerized in the amount from 100 to 60 wt % (meeting 15% by weight as instantly claimed) further teaching an emulsifying agent may be included. All aforementioned compounds are equivalent to Applicant's film-forming acrylic resin obtained by emulsion polymerizing monomers containing 15% or more of a methacrylic ester compound containing alkyl groups having 8 to 18 carbon atoms. Therefore, it would have been obvious to one of ordinary skill in the art to modify the acrylic based resin of Aurentry to include methacrylic ester compounds since Riku teaches the monomers may be used with polyvinyl alcohol as cited above.

13. Regarding claim 11 and the wet condition the printed surface is in, this is inherent to the product since the same method for coating (with in-line system) is taught (col. 2, lines 60-68) and the information is printed with oil based ink as cited above (same material as Applicant).

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,245,421 to Aurentry et al. in view of USPN 6,541,567 to Riku et al. and further in view of USPN 6,509,085 to Kennedy.

15. Aurentry, as cited above essentially teaches the claimed invention. Aurentry does not teach a method including printing with both anilox and rubber rolls for the receiving layer. However, Kennedy teaches several printing techniques for fabrication of microfluidic circuits of various substrates including ink jet and intaglio printing (obviously inclusive of ink jet ink) using both rolls in flexographic printing. At col. 3, lines 43-65, Kennedy teaches printed two or more layered sheets provided by ink jet and intaglio printing processes. At col. 5, lines 30-40,

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teaching ink is applied to a sheet suitable for receiving the ink. At col. 5, lines 61-68, teaching ink jet systems are used to print the ink (equivalent to a coater). At col. 9, line 65-col. 10, line 5, teaching in flexographic printing, a fountain pan supplies printing material to a rubber fountain roll, which in turn supplies material to an anilox roll. The anilox roll is central to the flexographic printing process, typically having a steel core, optionally coated with ceramic.

The function of the anilox roll is to provide uniform "ink" distribution to the plate cylinder, which provides ink to a substrate. Such description of printing is inclusive of the limitations of instant claim 12. Therefore, it would have been obvious to one of ordinary skill in the art to provide to Aurenty's printed media, a method of coating for ink jet inks including coaters and rollers of rubber and anilox types for the purpose of printing via flexography as taught by Kennedy as cited above.

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,245,421 to Aurenty et al. in view of USPN 6,541,567 to Riku et al. and further in view of USPN 5,367,026 to Okude et al.

17. Aurenty essentially teaches the claimed invention as applied above. Aurenty does not teach the resin composition for coating as expressed in instant claim 8. However, Okude teaches a resin composition and coating containing the same teaching the same formula as provided in patented claim 1. This coating can be applied on substrates via roll coating and the substrate can be plastic at col. 6, lines 62-68. Therefore, it would have been obvious to one of ordinary skill in the art to modify the media of Aurenty to further include a chemical formula as instant claim 8 because Okude teaches the formula in claim 8 suitable for substrate coatings as taught at col. 6, lines 62-68 and claim 1.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tamra L. Dicus
Examiner
Art Unit 1774

July 22, 2003

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

